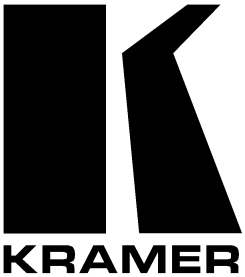
Kramer Electronics, Ltd.



USER MANUAL

Model:

VM-4HDMI

1:4 HDMI Distributor

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1 Introduction

Welcome to Kramer Electronics (since 1981): a world of unique, creative and affordable solutions to the infinite range of problems that confront the video, audio and presentation professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 500-plus different models now appear in 8 Groups[1], which are clearly defined by function.

Congratulations on purchasing your Kramer **VM-4HDMI** *1:4 HDMI Distributor.* The **VM-4HDMI** is ideal for:

- Home theater, presentation and multimedia applications
- Rental and staging

The package includes the following items:

- **VM-4HDMI** *1:4 HDMI Distributor*
- Power cord
- This user manual[2]

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual
- Use Kramer high performance high resolution cables[3]

3 Overview

The Kramer **VM-4HDMI** is a high quality 1:4 HDMI distributor that accepts an HDMI input and distributes the signal to four outputs, allowing one or more of the outputs to be connected to receiving devices, thus making it a versatile, reliable component in a video system. The **VM-4HDMI** distributes signals having resolutions up to UXGA, including all HDTV formats.

1 GROUP 1: Distribution Amplifiers; GROUP 2: Video and Audio Switchers, Matrix Switchers and Controllers; GROUP 3: Video, Audio, VGA/XGA Processors; GROUP 4: Interfaces and Sync Processors; GROUP 5: Twisted Pair Interfaces; GROUP 6: Accessories and Rack Adapters; GROUP 7: Scan Converters and Scalers; and GROUP 8: Cables and Connectors

2 Download up-to-date Kramer user manuals from our Web site at http://www.kramerelectronics.com

3 The complete list of Kramer cables is on our Web site at http://www.kramerelectronics.com

In particular, the **VM-4HDMI**:

- Supports up to 1.65Gbps bandwidth per graphic channel[1]
- Equalizes and reclocks the data
- Features a default EDID for fast and efficient connection of the unit[2]
- Can read and store, in non-volatile memory, the EDID[3] block from one of the outputs, so it can then provide the EDID information to the HDMI source even if the display device is not connected
- Includes five HDMI connectors, four output status LEDs, an active status LED, as well as EDID read and select buttons.

The **VM-4HDMI** is housed in a 19" 1U rack-mountable enclosure, and is fed from a 100-264 VAC universal switching power supply.

3.1 About HDMI

High-Definition Multimedia Interface (HDMI) is an uncompressed all-digital[4] audio/video interface, widely supported in the entertainment and home cinema industry. It delivers the highest high-definition image and sound quality.

In particular, HDMI:

- Provides a simple[5] interface between any audio/video source, such as a set-top box, DVD player, or A/V receiver and video monitor, such as a digital flat LCD / plasma television (DTV), over a single lengthy[6] cable
- Supports standard, enhanced, high-definition video, and multi-channel digital audio[7] on a single cable
- Transmits all ATSC HDTV standards and supports 8-channel digital audio, with bandwidth to spare to accommodate future enhancements and requirements

1 Suitable for resolutions up to UXGA at 60Hz, and for all HD resolutions

2 The default EDID feature lets you connect the VM-4HDMI without having to connect a display to the output

3 EDID is Extended Display Identification Data

4 Ensuring an all-digital rendering of video without the losses associated with analog interfaces and their unnecessary digital-to-analog conversions

5 With video and multi-channel audio combined into a single cable, the cost, complexity, and confusion of multiple cables currently used in A/V systems is reduced

6 HDMI technology has been designed to use standard copper cable construction at up to 15m

7 HDMI supports multiple audio formats, from standard stereo to multi-channel surround-sound. HDMI has the capacity to support Dolby 5.1 audio and high-resolution audio formats

- Benefits consumers by providing superior, uncompressed digital video quality via a single cable[1], and user-friendly connector
- Is backward-compatible with DVI (Digital Visual Interface)
- Supports two-way communication between the video source (such as a DVD player) and the digital television, enabling new functionality such as automatic configuration and one-button play

HDMI has the capacity to support:

- Existing high-definition video formats (720p, 1080i, and 1080p/60), as well as standard definition formats such as NTSC or PAL

3.2 Defining EDID

The Extended Display Identification Data (EDID[2]) is a data-structure, provided by a display, to describe its capabilities to a graphics card (that is connected to the display's source). The EDID enables the **VM-4HDMI** to "know" what kind of monitor is connected to the output. The EDID includes the manufacturer's name, the product type, the timing data supported by the display, the display size, luminance data and (for digital displays only) the pixel mapping data.

3.3 Recommendations for Best Performance

To achieve the best performance:

- Connect only good quality connection cables, thus avoiding interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)
- Avoid interference from neighboring electrical appliances and position your **VM-4HDMI** away from moisture, excessive sunlight and dust

4 Your VM-4HDMI 1:4 HDMI Distributor

Figure 1 and Table 1 define the **VM-4HDMI** *1:4 HDMI Distributor*:

1 HDMI provides the quality and functionality of a digital interface while also supporting uncompressed video formats in a simple, cost-effective manner

2 Defined by a standard published by the Video Electronics Standards Association (VESA)

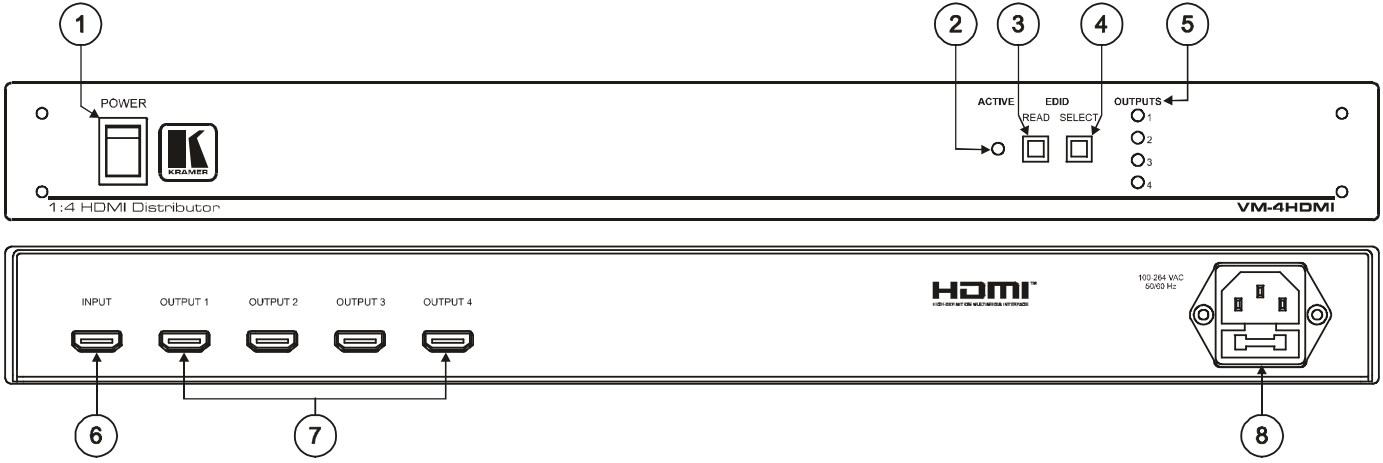

Figure 1: VM-4HDMI 1:4 HDMI Distributor

Table 1: VM-4HDMI 1:4 HDMI Distributor Features

#	Feature		Function
1	*POWER* Switch		Illuminated switch for turning the unit ON or OFF
2	*ACTIVE* LED		Illuminates when the input is active; blinks when the input is not valid
3	*EDID*	*READ* Button	Press to read the EDID of the selected display
4	*EDID*	*SELECT* Button	Select the desired display for EDID information
5	*OUTPUTS* LEDs		LEDs light when an output(s) is connected and active; LEDs blink when selecting EDID (see section 5.1)
6	*INPUT* HDMI Connector		Connects to the HDMI source
7	*OUTPUT* HDMI Connectors		Connect to the HDMI acceptors (from 1 to 4)
8	Power Connector with Fuse		AC connector enabling power supply to the unit

5 Connecting a VM-4HDMI 1:4 HDMI Distributor

To connect the **VM-4HDMI** as a 1:4 HDMI distributor, do the following:

1. Connect an HDMI source (for example, a DVD player) to the INPUT connector.
2. Connect the four OUTPUT connectors[1] to up to four HDMI acceptors, as follows:
   - OUTPUT 1 connector to HDMI acceptor 1 (for example, an LCD TV)
   - OUTPUT 2 connector to HDMI acceptor 2 (for example, a plasma display)
   - OUTPUT 3 connector to HDMI acceptor 3 (for example, a plasma display)
   - OUTPUT 4 connector to HDMI acceptor 4 (for example, a plasma display)
3. Connect the power cord to the mains electricity.
4. Turn ON the POWER.
5. Acquire EDID (see section 5.1).

1 As required. Up to 4 outputs can be connected on the VM-4HDMI. Not all outputs need to be connected

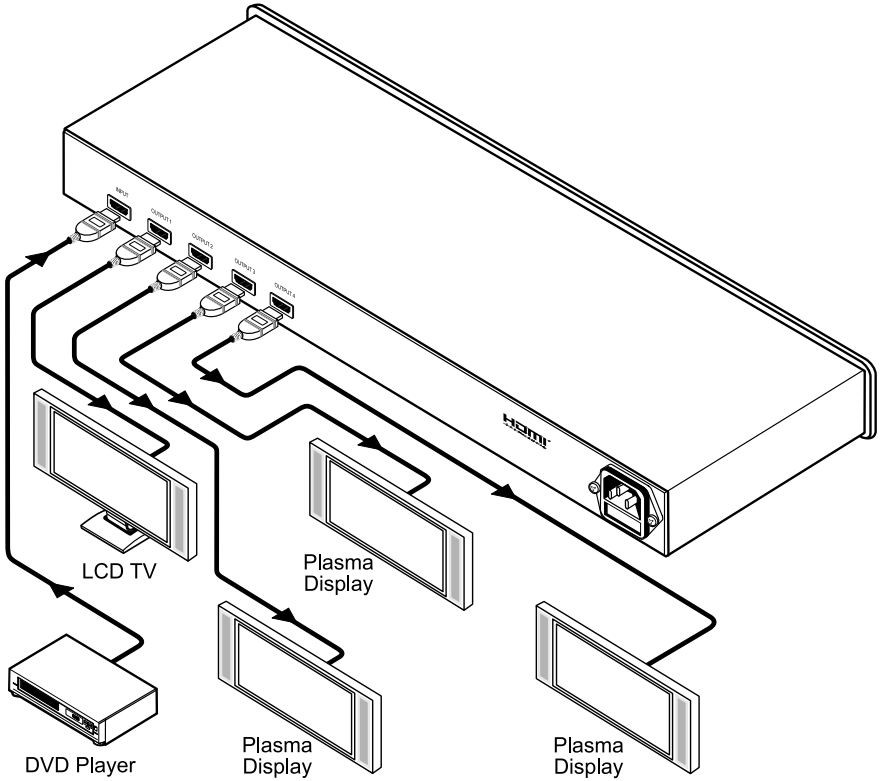

Figure 2: Connecting a VM-4HDMI 1:4 HDMI Distributor

5.1 Acquiring EDID

The **VM-4HDMI** initially operates with the default EDID. This means that you can turn ON the power before connecting any of the acceptors or the source.

5.1.1 Acquiring the EDID from a Selected Output

You can either work with the default EDID or select an EDID from one of the connected outputs.

To select an EDID, do the following:

1. Press the SELECT button. The connected OUTPUTS LEDs blink.
2. Press the SELECT button again to cycle from one output to another until reaching the desired output[1].
   Blinking will cease.
3. Press the READ button.
4. Turn OFF the power on the **VM-4HDMI**.
5. Turn ON the power.
   The READ button blinks.
6. Press the READ button.
   The blinking ceases and the button illuminates. The **VM-4HDMI** accesses the EDID of the selected output.
   The EDID of the selected output is stored in the non-volatile memory when the READ button no longer illuminates.

5.1.2 Restoring the Default EDID

To restore the default EDID, do the following:

1. Disconnect each output.
2. Turn OFF the power.
3. Turn ON the Power.
   The READ button flashes.
4. Press the READ button.
   The READ button illuminates.
   The default EDID is stored in the non-volatile memory when the READ button no longer illuminates.

1 After cycling once through all the outputs, the blinking will resume and you will have to start this procedure again to choose the desired output

6 Technical Specifications

Table 2 includes the technical specifications:

Table 2: Technical Specifications[1] of the VM-4HDMI 1:4 HDMI Distributor

INPUT:	HDMI Connector
OUTPUTS:	4 HDMI Connectors
BANDWIDTH:	Supports up to 1.65Gbps bandwidth per graphic channel
COMPLIANCE WITH HDMI STANDARD:	Supports HDMI 1.0 and HDCP
CONTROLS:	SELECT and READ buttons for selecting and storing EDID information
INDICATOR LEDs:	OUTPUTS 1 to 4, and ACTIVE LED
POWER SOURCE:	100-264 VAC, 50/60Hz 16VA
DIMENSIONS:	19-inch (W), 7-inch (D), 1U (H)
WEIGHT:	2.5 kg. (5.5 lbs.) approx.
ACCESSORIES:	Power cord
OPTIONS:	HDMI/HDMI male-to-male cables

1 Specifications are subject to change without notice

LIMITED WARRANTY

Kramer Electronics (hereafter *Kramer*) warrants this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for seven years from the date of the first customer purchase.

WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by Kramer, or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the Web site www.kramerelectronics.com.
2. Any product, on which the serial number has been defaced, modified or removed.
3. Damage, deterioration or malfunction resulting from:
   - i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
   - ii) Product modification, or failure to follow instructions supplied with the product
   - iii) Repair or attempted repair by anyone not authorized by Kramer
   - iv) Any shipment of the product (claims must be presented to the carrier)
   - v) Removal or installation of the product
   - vi) Any other cause, which does not relate to a product defect
   - vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.
3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on you product, you must take or ship it prepaid to any authorized Kramer service center.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).
3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:
2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place.
NOTE: All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.
This equipment has been tested to determine compliance with the requirements of:

EN-50081:	"Electromagnetic compatibility (EMC); generic emission standard. Part 1: Residential, commercial and light industry"
EN-50082:	"Electromagnetic compatibility (EMC) generic immunity standard. Part 1: Residential, commercial and light industry environment".
CFR-47:	FCC Rules and Regulations: Part 15: "Radio frequency devices Subpart B – Unintentional radiators"

CAUTION!

- ⌦ Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.
- ⌦ Use the supplied DC power supply to feed power to the machine.
- ⌦ Please use recommended interconnection cables to connect the machine to other components.

For the latest information on our products and a list of Kramer distributors, visit our Web site: www.kramerelectronics.com, where updates to this user manual may be found.
We welcome your questions, comments and feedback.

Safety Warning:
Disconnect the unit from the power supply before opening/servicing.

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P/N: 2900-000154 REV 3